

**METHOD OF DISTINGUISHING STORE ITEMS HAVING RFID  
LABELS FROM ITEMS BROUGHT INTO THE STORE BY A SHOPPER**

**Cross-reference to related application**

The present application is related to co-pending application serial number \_\_\_\_\_, entitled "METHOD OF SUBSTITUTING STORE ITEMS HAVING RFID LABELS", filed on the same date, and having as inventor, John Goodwin.

**Background of the Invention**

The present invention relates to transaction processing systems in supermarkets and other retail establishments, and more specifically to a method of distinguishing store items having radio frequency identification (RFID) labels from items brought into the store by a shopper.

Some items may be labelled with both barcode labels and RFID labels. RFID technology may supplement or even replace bar code reader technology for distinguishing and recording items for purchase. Some of the uses of RFID technology are disclosed in U.S. Patent No. 6,019,394 assigned to the assignee of the present invention. This patent is hereby incorporated by reference.

Since RFID labels may be permanently attached to merchandise items, RFID labels on personal items brought into a store by a shopper must be distinguishable from items for sale in the store in order to avoid charging the shopper for an item that the shopper already owns, or to avoid accusing the shopper of stealing an item that the shopper owns.

Therefore, it would be desirable to provide a method of distinguishing store items having RFID labels from personal items and items previously purchased from a store.

### **Summary of the Invention**

In accordance with the present invention, a method of distinguishing store items having radio frequency identification (RFID) labels from items brought into the store by a shopper is provided.

The method includes the steps of storing first identification information associated first radio frequency identification labels on first items for sale by the store, obtaining second identification information from second radio frequency identification labels on second items by a label reader in the store, comparing the second identification information to the first identification information, determining third identification information within the second identification information which is associated with third radio frequency identification labels on third items, and ignoring the third identification information as being associated with the items brought into the store by the shopper.

It is accordingly an object of the present invention to provide a method of distinguishing store items having RFID labels from items brought into the store by a shopper.

It is another object of the present invention to distinguish RFID labels on store items from personal items and previously purchased items brought into a store by a shopper.

### **Brief Description of the Drawings**

Additional benefits and advantages of the present invention will become apparent to those skilled in the art to which this invention relates from the subsequent description of the preferred embodiments and the appended claims, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a block diagram of a transaction system with RFID capability; and

Fig. 2 is a flow diagram illustrating the security method of the present invention.

### **Detailed Description**

Referring to Fig. 1, store system 10 primarily includes transaction terminal 12, transaction server 14, and exit security terminal 16.

Transaction terminal 12 executes security software 20, which causes radio frequency identification (RFID) label reader 38 to obtain item identification information from an RFID label during a transaction. Security software 20 compares the item identification information to item identification stored within inventory file 44 to determine whether the RFID label is associated with an item 32 for sale by the store. If security software 20 determines that the RFID label is one associated with store item 32, then security software 20 passes the item identification information to transaction software 22. If security software 20 determines that the RFID label is not a store item 32, the security software 20 assumes that the RFID label is one associated with a personal item 30 or a previously sold item 56 and does nothing further.

Transaction software 22 obtains a cost for store item 32 from a price look-up (PLU) file 42 stored in a transaction server 14 and adds the cost to the transaction. Transaction software 22 records payment for item 32 from the shopper. Transaction software 22 then marks item 32 as being sold in inventory file 44. Optionally, transaction software 22 may additionally create a separate customer transaction record 48, identified by a unique transaction number on the shopper's receipt, indicating purchased items 32.

Terminal 12 may include additional peripherals suited to its function, such as display 24, input device 26, and card reader 28. Input device may include a keyboard. Display 24 and input device 26 may be combined as a touch screen. Card reader 28 accepts payment cards, such as credit cards.

Transaction server 14 stores PLU file 42 and inventory file 44. Transaction server 14 also executes inventory management software 46, which stores item identification information associated with items 32 in inventory file 44 and which may periodically purge inventory file 44 of item identification information associated with sold items 56 from the store.

When the shopper exits the store, exit security terminal 16 determines whether the RFID label is associated with personal item 30, item 32, or a sold item 56.

Security terminal 16 executes exit security software 50 which causes RFID label reader 40 to obtain item identification information and compare it to item identification information in inventory file 44. If the item identification information is associated with an item 32 for sale, exit security software 50 displays an alert on display 58. A security operator seeing the alert may then stop the shopper and investigate. If the item identification

information is not in inventory file 44 or is marked as sold, exit security software 50 does nothing.

If a separate transaction record 48 is maintained, security software 50 obtains user identification information and may first compare item identification information from RFID label reader 40 with transaction record 48 before comparing the item identification information to inventory file 44. Security software 50 may obtain user identification information from a shopper identification card through card reader 52.

RFID label 34 is associated with personal item 30, RFID label 36 is associated with store item 32, and RFID label 54 is associated with sold item 56. RFID labels 34, 36, and 54 may include active or passive RFID labels.

Referring now to Fig. 2, the security is illustrated in detail beginning with START 60.

In step 62, inventory management software 46 stores item identification information from each RFID label 36 associated with an item 32 to be sold by the store.

In step 64, security software 20 reads an RFID label during a transaction.

In step 66, security software 20 compares the item identification information in the RFID label to item identification information in inventory file 44 to determine whether the RFID label is associated with an item 32. If the RFID label is associated with a personal item 30 or a previously sold item 56, operation proceeds to step 72. Otherwise, operation proceeds to step 68.

In step 68, security software 20 passes the item identification information to transaction software 22 so that transaction software 22 can add item 32 to the transaction.

In step 70, transaction software 22 completes the transaction and marks item 32 as being sold in inventory file 44.

In step 72, exit security software 50 causes RFID label reader 40 to read an RFID label as a shopper exits the store.

In step 74, exit security software 50 compares the item identification information in the RFID label to item identification information in inventory file 44 to determine whether the RFID label is associated with a personal item 30, an item 32 to be sold, or a sold item 56.

Security software 50 may also determine whether the RFID label is associated with a sold item 56 by comparing the item identification information to item identification information in transaction record 48. The shopper may swipe an identification card in card reader 52, or provide a transaction number to the security operator from the shopper's receipt, in order to obtain transaction record 48. The operator of security terminal 16 may manually enter the transaction number from the receipt in order to pull up the correct transaction record 48.

If the RFID label is associated with a personal item 30 or a sold item 56, operation proceeds to step 78. Otherwise, operation proceeds to step 76.

In step 76, exit security software 50 provides a security operator with an indication that the item is an item 32 to be sold and has possibly been stolen. The indication is preferably a message displayed on display 58, but other types of indications are also envisioned, such as an audible alarm. The security operator may then investigate.

In step 78, operation ends.

Although the present invention has been described with particular reference to certain preferred embodiments thereof, variations and modifications of the present invention can be effected within the spirit and scope of the following claims.